

REMARKS

Upon entry of the present amendment, claims 1-13 are pending in the application. Of these, claims 1, 6 and 13 are independent.

The applicant gratefully acknowledges the Examiner's indication that claims 1-5 are allowed, and that claims 8 and 9 include allowable subject matter.

The applicant's representative thanks the Examiner for his helpful remarks during a telephone conversation which took place on November 22, 2005. In the conversation, a proposed amendment to claim 6 was discussed. In particular, it was noted that if claim 6 were amended to include the limitations of claim 8, as well as a limitation which recites that the spacer shaft lies co-linearly with the drive shaft of the servo motor, then claim 8 would require amendment to avoid rejections under 35 USC 112.

The above-identified Office Action has been reviewed, the references carefully considered, and the Examiner's comments carefully weighed. In view thereof, the present Amendment is submitted. It is contended that by the present amendment, all bases of rejection set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

IN THE SPECIFICATION

The specification is amended herein to correct a typographical error. In particular, in paragraph 41, a typographical error is corrected in which the reference number 5 has been replaced with the correct reference number 15. No new matter is added by this amendment, and the corrected reference number 15 in the specification now corresponds to the reference number 15 shown in Fig. 5.

IN THE CLAIMS**Claim Objections**

The Examiner has objected to claims 6 and 9 due to informalities. The applicant has amended claim 6 to recite “the motor pivot member” rather than “a pivot member” as suggested by the Examiner. In addition, the applicant has amended claim 9 to change its dependency from claim 6 to claim 8 whereby proper antecedent basis for the term “said spacer” is provided. By these amendments, the objections to claims 6 and 9 are obviated.

Claim Rejections – 35 USC 102

In the Office Action, the Examiner rejected claims 6, 7, and 10 under 35 USC 102(b) as being anticipated by Hayashi et al (U.S. Pat. No. 4,916,901). In the rejection, the Examiner states that Hayashi discloses a hydraulic CVT having a housing 4, motor casing 24 supporting a motor pivot member 23, as swash plate plunger pump P comprising a pump swash plate 12 and pump cylinder 7, an input gear 2 operative connected to the swash plate plunger pump, a swash plate plunger motor M including a motor swash plate 22 and a motor cylinder 17, an output shaft 31 supported by bearings 40, 48, and a swash plate adjustment mechanism C used to mechanically adjust the motor swash plate 22, a servo motor 80 operatively attached to the swash plate adjustment mechanism including an output shaft disposed in parallel to the rotational axis of the input gear 2.

Applicant's Response

The applicant agrees, that as broadly claimed, Hayashi '901 discloses the recited features. However, the applicant respectfully submits that the applicant's invention, disclosed but not

claimed, is clearly different and patentably distinguishable from that disclosed by Hayashi '901. Thus, the applicant has amended claim 6 to more clearly recite the features of the applicant's invention. In particular, claim 6 now recites that the input gear is arranged between a swash plate surface of a pump swash plate member and the servomotor. This feature is not suggested or disclosed by the cited prior art.

Allowable Subject Matter

The Examiner has indicated that claims 1-5 are allowed, and that claims 8 and 9, although objected to for being dependent upon a rejected base claim, include allowable subject matter and would be allowed if rewritten in independent form. Again, the applicant gratefully acknowledges the indication of allowable subject matter in these claims.

Other Matters

The applicant has become aware of prior art references which were recently cited in an Office Action for a related patent application, Application No. 10/804,474. The references were submitted to the Examiner of the subject application in an IDS filed on November 16, 2005, and consist of a US patent to Hayashi et al. (US 5,353,595) and a US patent application publication to Saito et al. (2002/0007633 A1). Although the Examiner has indicated claim 1 to be allowed, the applicant has amended claim 1 herein to more clearly define the applicant's invention from these references and the other references of record.

In particular, claim 1 now recites that the input gear is arranged between a swash plate surface of a pump swash plate member and the servomotor. This feature is not disclosed or suggested by Saito, who discloses a servomotor 80 for actuating a motor swash plate 20, a pump

swash plate 10, 12 which overlies the servomotor 80, and an input gear 2a disposed to one side of both the servomotor 80 and a pump swash plate surface. Thus, claim 1 as amended herein, avoids rejection in view of Saito.

New claim 11, which depends from claim 1, has been added to the application herein. Claim 11 adds a further limitation to claim 1 in which the servo motor is positioned above and adjacent to an outer end of an other one of said swash plate plunger pump and said swash plate plunger motor such that the servo motor does not overlie the swash plate plunger pump and swash plate plunger motor.

The applicant submits that the structure recited in claim 11 is not disclosed or suggest by Hayashi '901, or '595, in which a swash plate adjustment mechanism is disposed to a side of the hydraulic CVT, rather than above the hydraulic CVT (note that in each of these references, Fig. 1 is a plan view, thus the adjustment mechanism is disposed at a side of the swash plate plunger motor M).

Additionally, the structure recited in claim 11 is not disclosed or suggest by Hayashi '151 or '022, in which a swash plate adjustment mechanism is disposed along a side of and above the hydraulic CVT. However, in the case of Hayashi '022, this reference discloses a servo motor output shaft that is not parallel to the rotational center axis of said input gear, and further does not disclose the servo motor disposed to partially overlap the input gear in side view as claimed. In the case of Hayashi '151, as seen in Fig. 1, the servomotor 29 overlies the transmission, which is contrary to the claimed structure.

Further, the structure recited in claim 11 is not disclosed by Saito. The applicant notes that Saito et al. disclose (Fig. 1) an adjustment mechanism 79 that includes a first shaft extending

parallel to the output shaft, a second shaft extending parallel to and substantially co-linear with the first shaft, the first shaft driven for rotation by the second shaft through a geared idler shaft, and a motor 80 which drives said second shaft, and an arm connecting a motor pivot member 22 to the first shaft. The motor 80 is secured to a casing 4 adjacent a side surface of the pump of the transmission.

In addition, the applicant respectfully submits that it would not be obvious to modify the position motor swash plate adjustment mechanism 79 of Saito by positioning the motor 80 at a location adjacent one end of the as transmission and laterally outside thereof as disclosed by Hayashi '022 since neither reference provides a motivation for such a modification. Saito does not disclose or suggest any alternative positions for the motor 80. Furthermore, the applicant notes that, in Hayashi '022, the position of the motor swash plate is controlled by the motor 286 acting through a complicated mechanism including a reducing sector gear/worm gear combination 285, 281, a damper 282, and a trunion 270, 270' operatively connected to the motor swash plate. To incorporate speed reduction, damping, and actuation all together within this mechanism, results in a mechanism that is inherently large, whereby the position of the motor 286 is shown to be adjacent one end of the as transmission and laterally outside thereof. Hayashi does not specifically disclose placement of the motor 286 at this location for any particular reason, whereby it can be assumed the position is determined by the size of the associated mechanism. Thus, there is no motivation for moving the actuator of Saito, who discloses a much simpler and compact mechanism, to a similar location since Saito does not include sector gears, dampers, or trunions. Moreover, such a modification would unfavorably complicate and enlarge the structure of Saito, whereby manufacturing costs and overall transmission weight would be increased for no disclosed benefit.

For the foregoing reasons, claim 11 avoids rejection in view of the prior art references, alone or in combination, and allowance of claim 11 is respectfully requested.

New claim 12, which depends from claim 6, has been added to the application herein. The applicant respectfully submits that claim 12 also avoids rejection in view of the prior art references. In particular, although Saito discloses an actuation structure which has similarities to that of the applicant, Saito does not disclose a spacer shaft disposed between the servo motor and the actuation mechanism as claimed, but instead diagrammatically shows (Fig. 1) a gear mechanism extending therebetween.

New independent claim 13 has been added to the application herein. New claim 13 is similar to original claim 6 amended to recite that servo motor has a rotatable drive shaft disposed in parallel to the rotational center axis of said input gear, and that the swash plate adjustment mechanism is connected to said drive shaft of the servo motor through a spacer shaft, the spacer shaft disposed so as to lie parallel with the rotational center axis of said input gear, co-linearly with the drive shaft of the servo motor, and proximate an outer circumferential portion of said input gear.

These features are not disclosed by Hayashi '901, who discloses a pulse motor 80 disposed at a lateral side of the swash plate plunger motor M. The motor 80 of Hayashi is secured to a ball-nut mechanism 82 using a reduction gear assembly 81, and thus does not disclose a spacer shaft co-linear with the drive shaft of the motor 80, as claimed. Moreover, the actuation mechanism of Hayashi '901 is on the side of the transmission opposed to the side which includes the input gear, so that no part of the actuation mechanism of Hayashi is

"proximate an outer circumferential portion of the input gear", as claimed. Thus, new claim 13 avoids rejection in view of the cited prior art.

Conclusion

In conclusion, applicant has overcome the Examiner's rejections of record. While applicant has considered all of the references of record, it is respectfully submitted that the continuously variable transmission as defined by the present claims, is believed to be allowable over all of the prior art of record.

If the Examiner is not fully convinced of the allowability of all of the claims now in the application, applicant respectfully requests that the Examiner telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable consideration is respectfully requested.

Respectfully submitted,



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